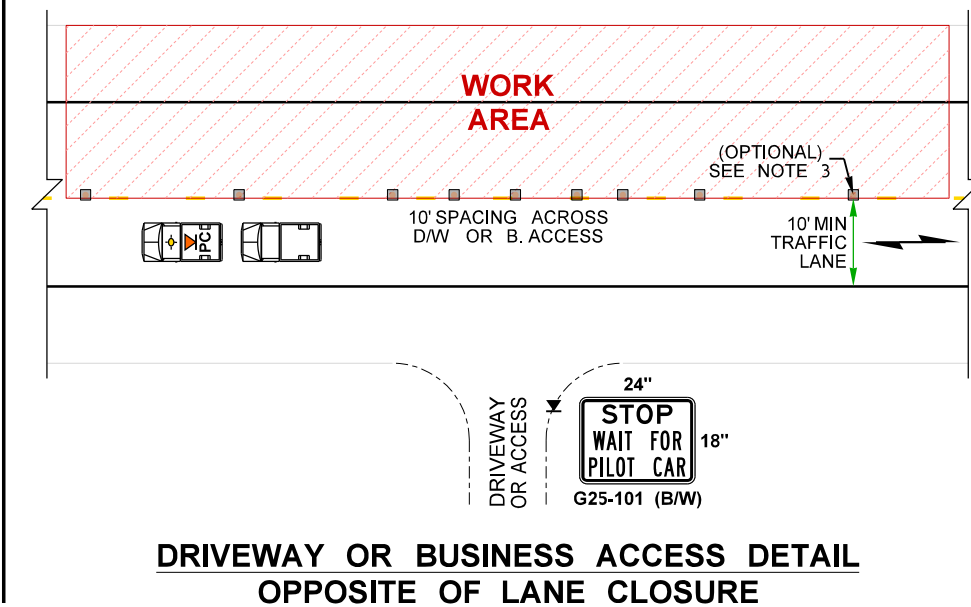
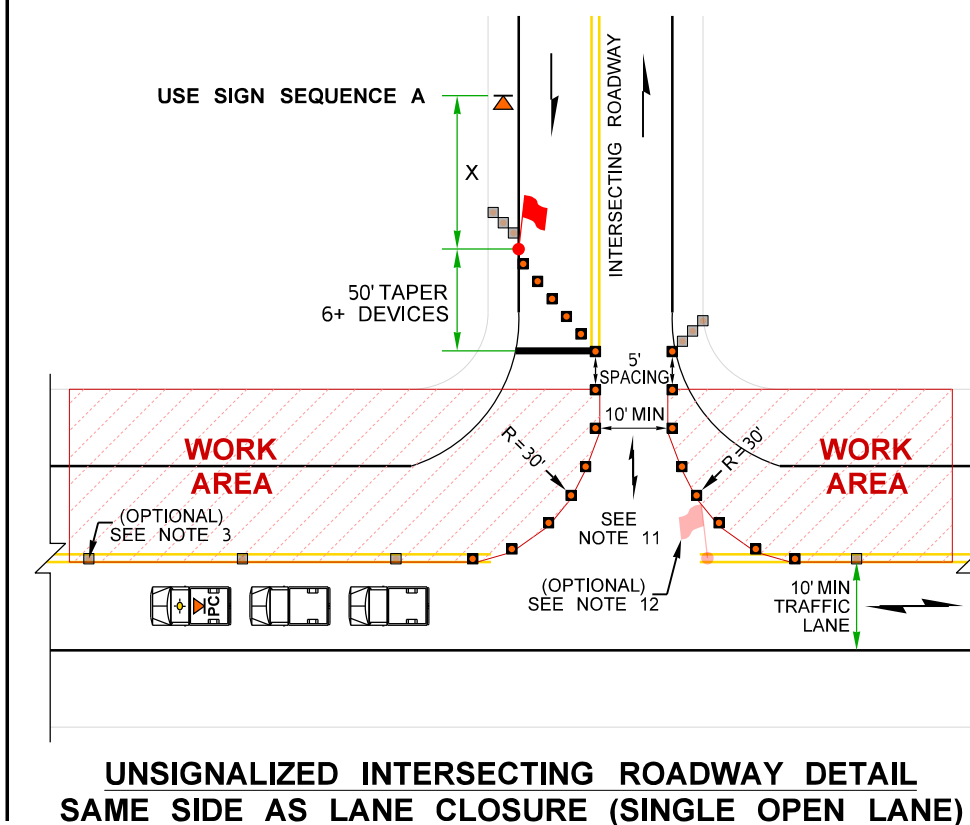
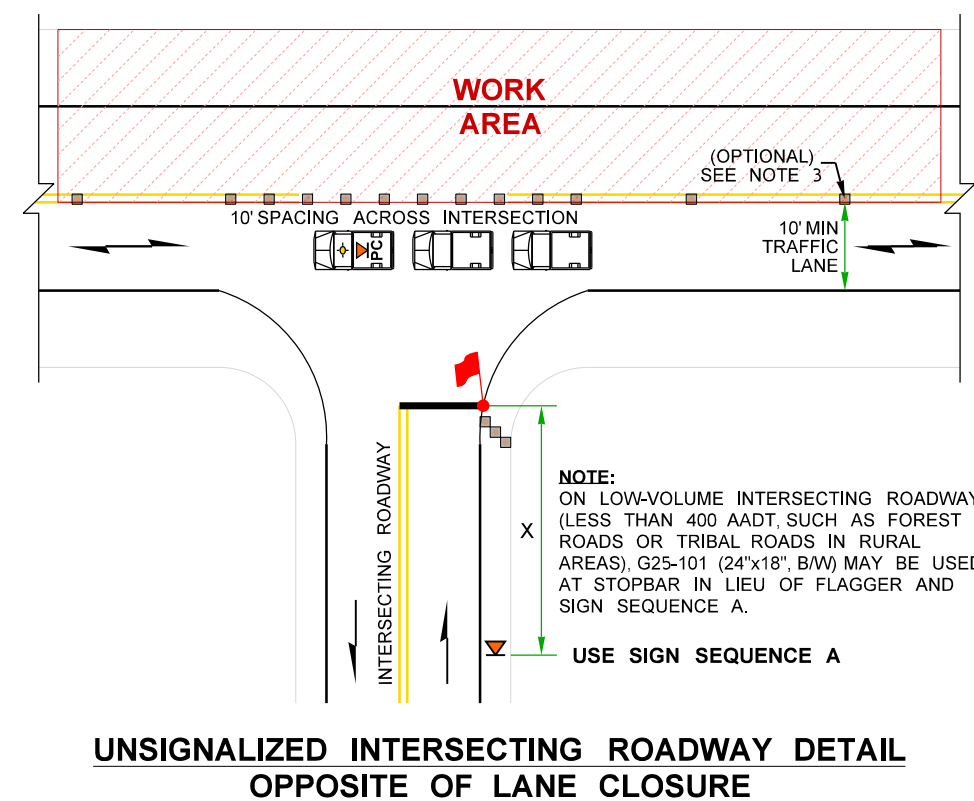
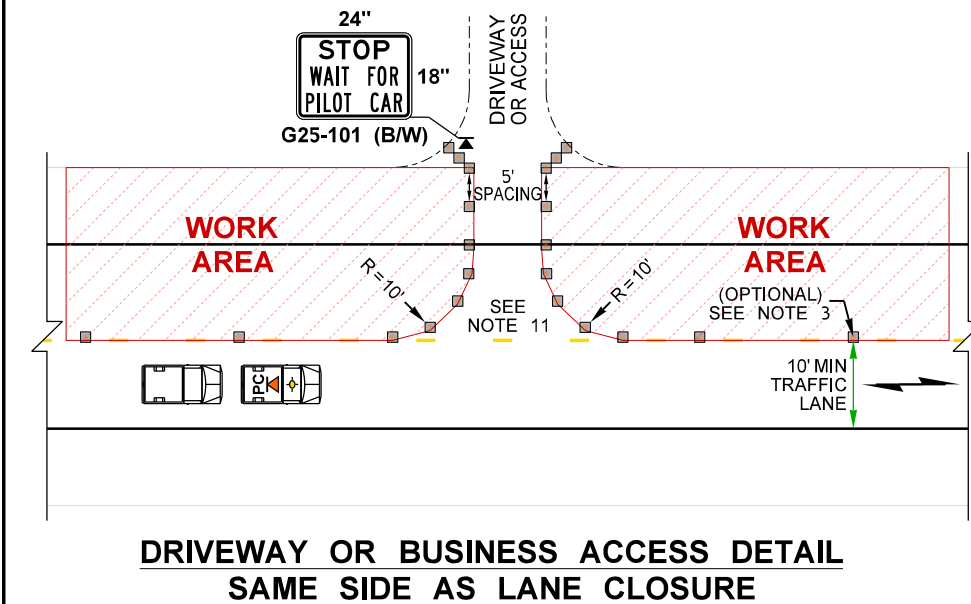
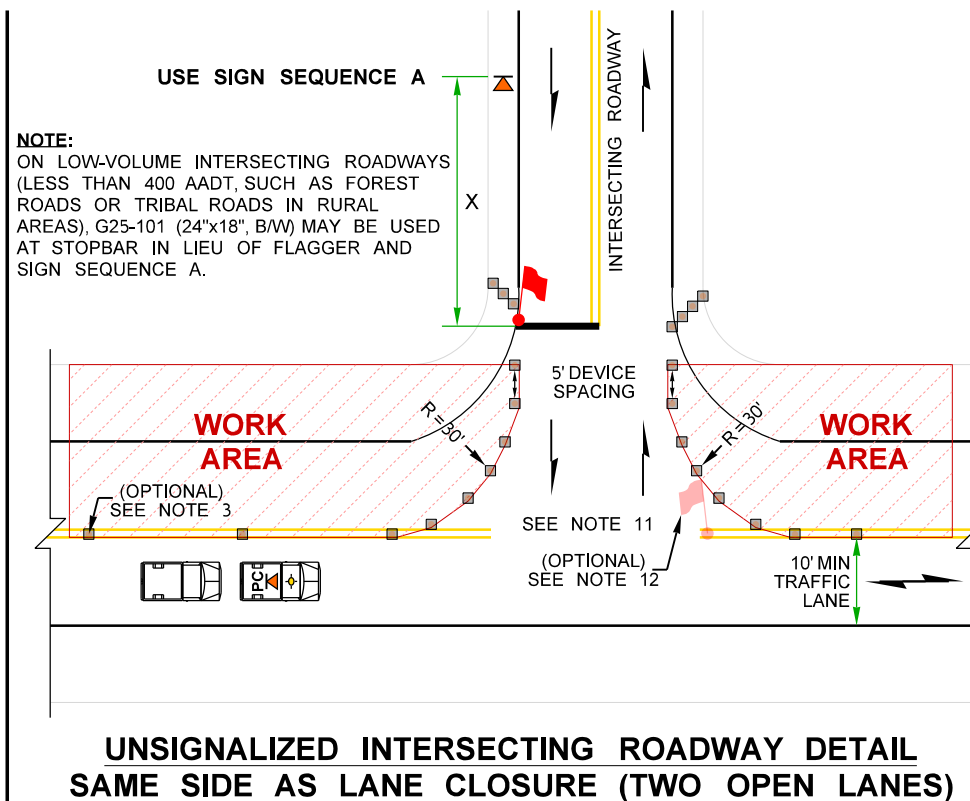
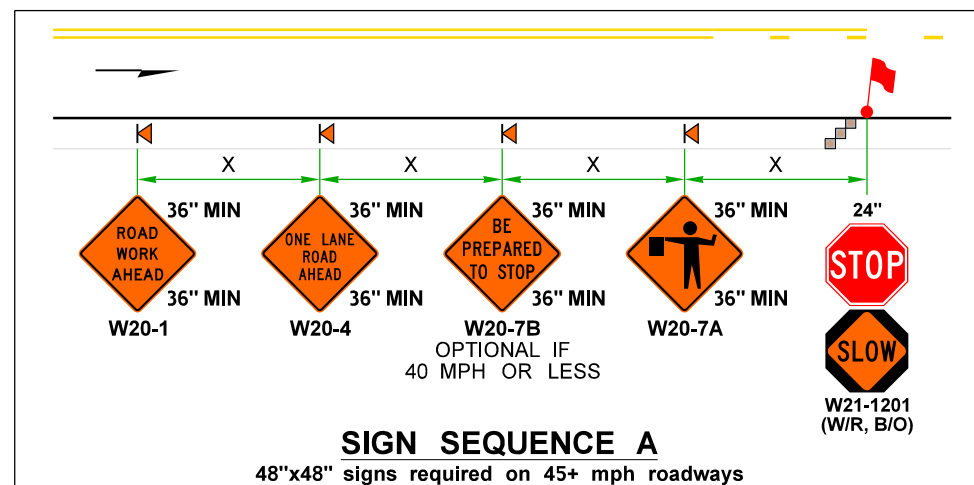


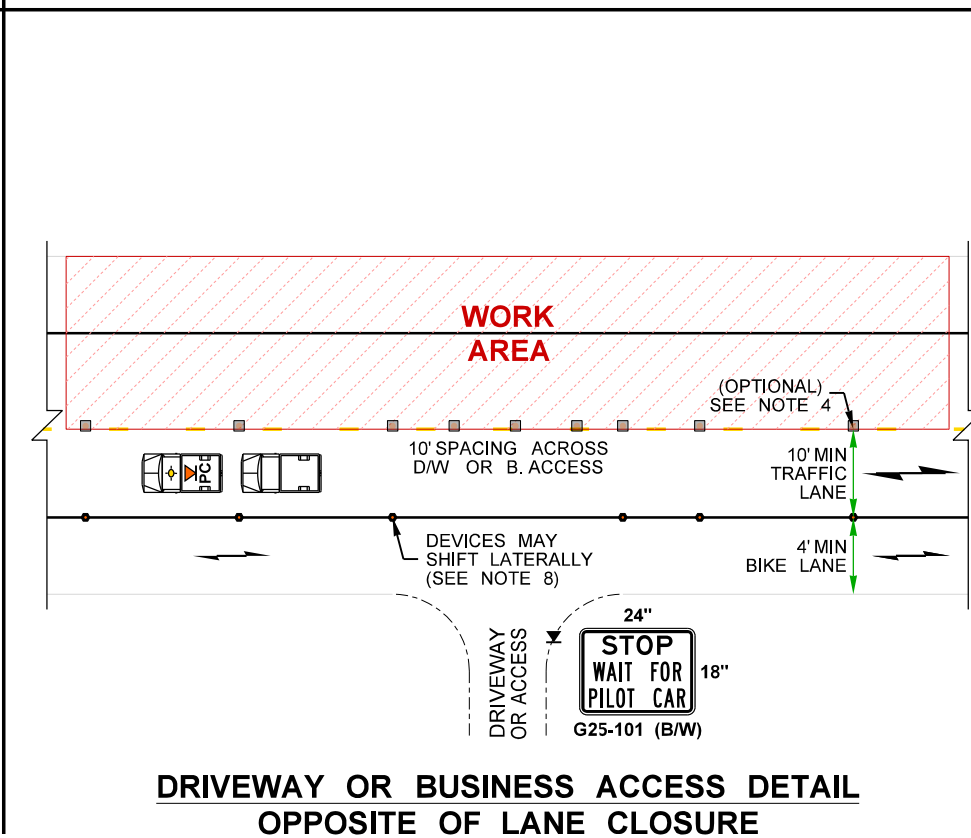
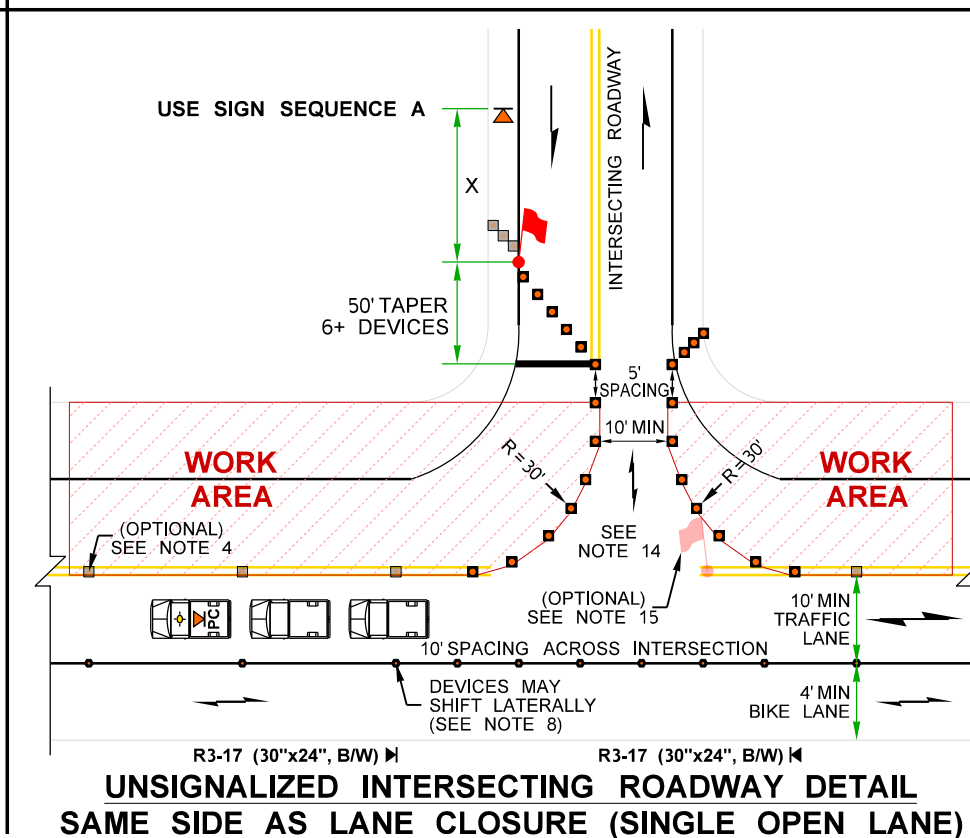
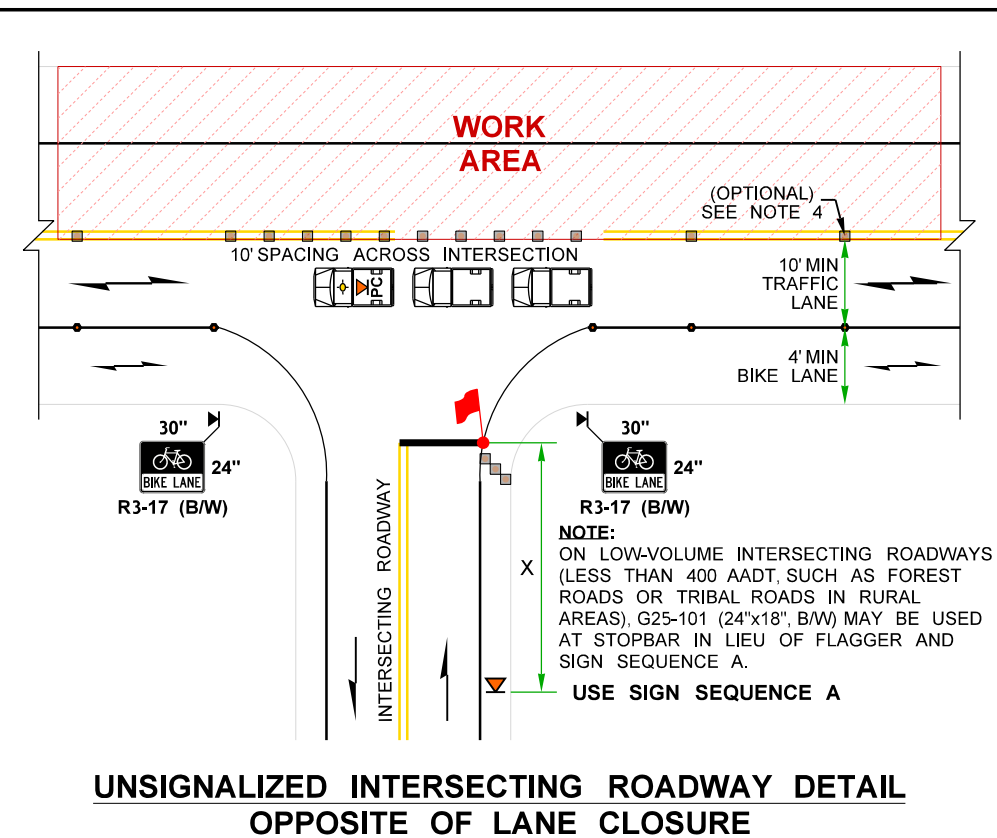
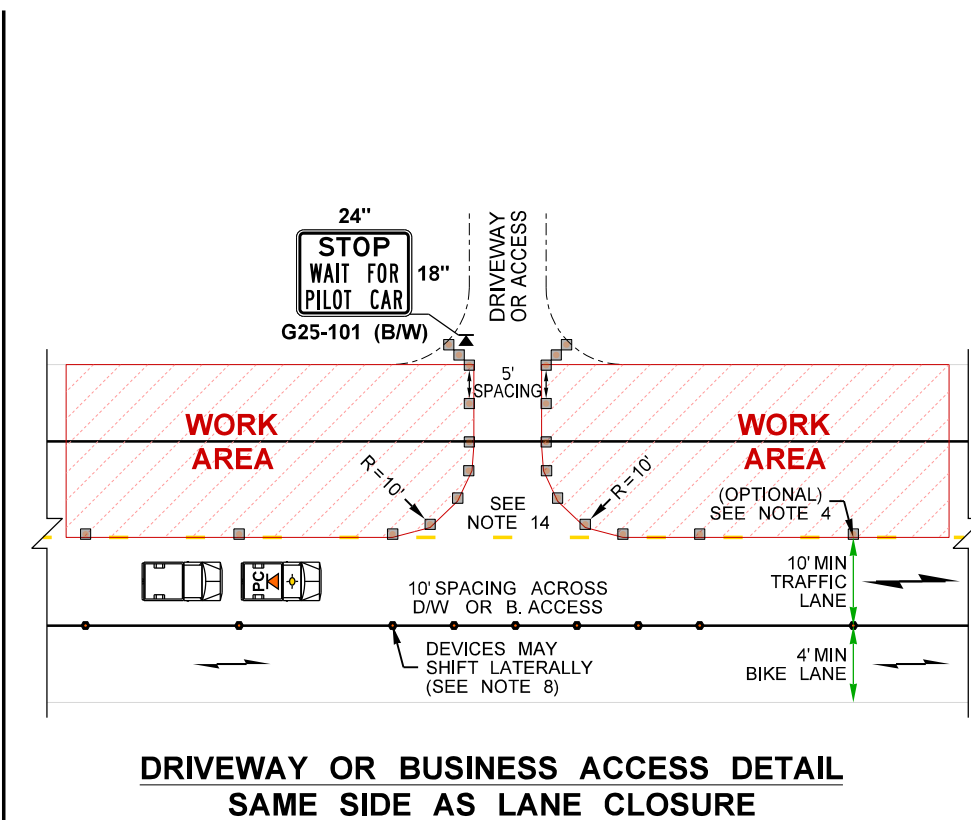
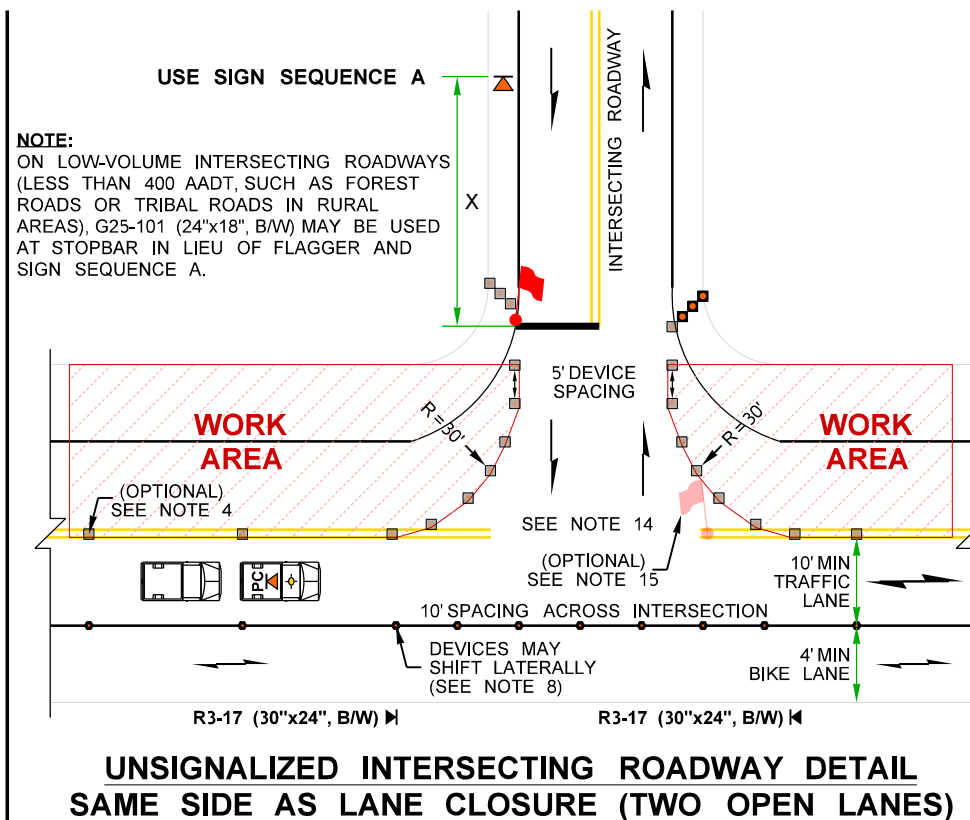
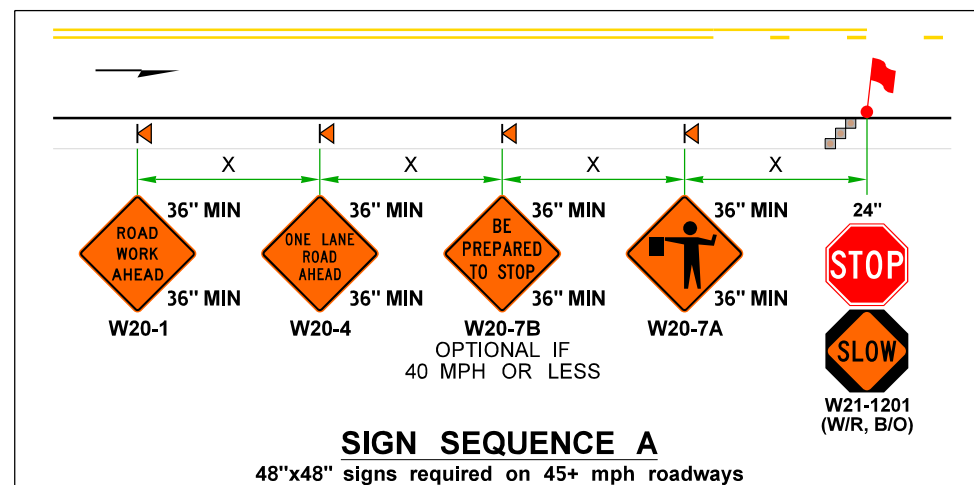
12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.



PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED
SHARED BIKE-VEHICLE LANE STRATEGY (45+ MPH HIGHWAYS)


FILE NAME C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\323Hwy45+AltTrafficFlaggerPilotCarOp.dgn										Plot 2	
TIME	6:56:34 AM				REGION NO.	STATE	FED.AID PROJ.NO.			PLAN REF NO	
DATE	7/18/2023				10	WASH				TC323	
PLOTTED BY	LintzF				JOB NUMBER			<div><div></div><div>Washington State Department of Transportation</div></div>	SHEET 2 OF 4 SHEETS		
DESIGNED BY											
ENTERED BY											
CHECKED BY											
PROJ. ENGR.											
REGIONAL ADM.		REVISION	DATE	BY	CONTRACT NO.			LOCATION NO.	TYPICAL TRAFFIC CONTROL PLANS		

15. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.



PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED
SEPARATED BICYCLE LANE STRATEGY (45+ MPH HIGHWAYS)

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DATE 7/18/2023						10		WASH			
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REGIONAL ADM.											
		REVISION		DATE		BY					



Washington State
Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

DATE

P.E. STAMP BOX

DATE

P.E. STAMP BOX

PLAN REF NO

TC323

SHEET

4

OF

4

SHEETS

10. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC323, SHEET 1.

12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

Diagram illustrating the required sign sequence for a road work zone on a 45+ mph roadway, showing the placement and spacing of signs relative to the work zone (indicated by a flagman and a flag).

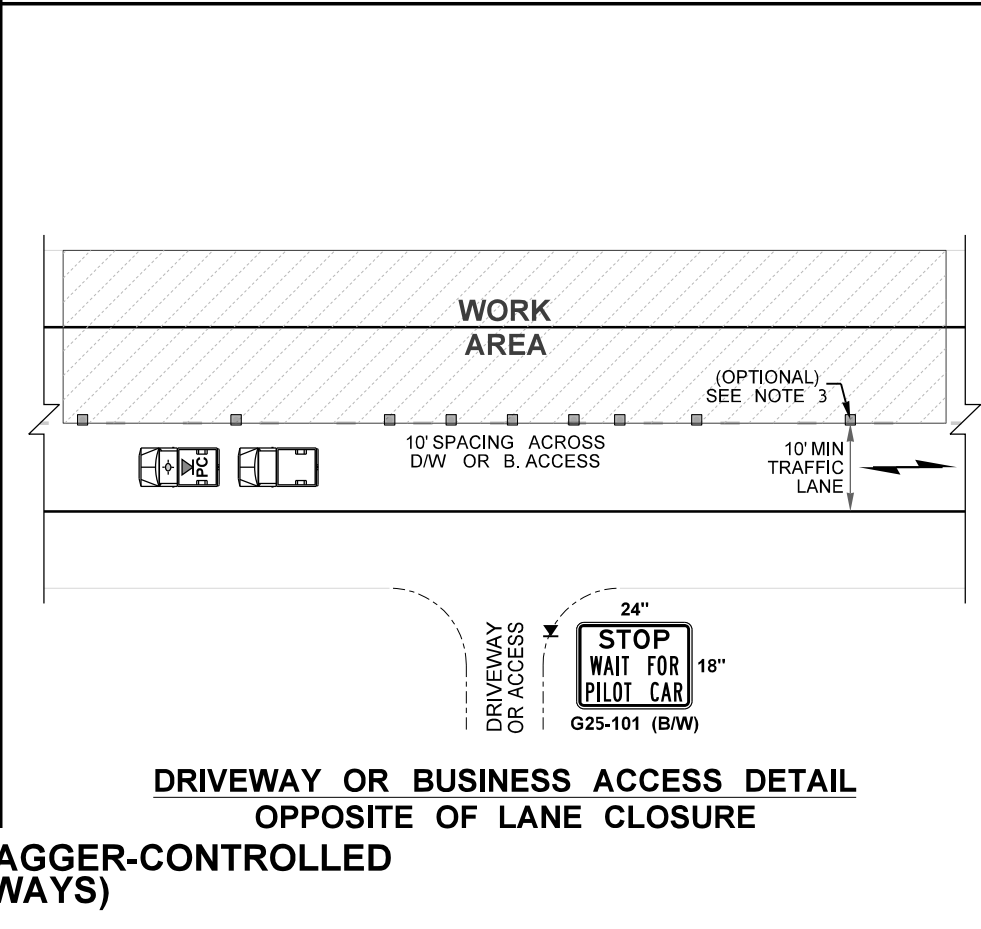
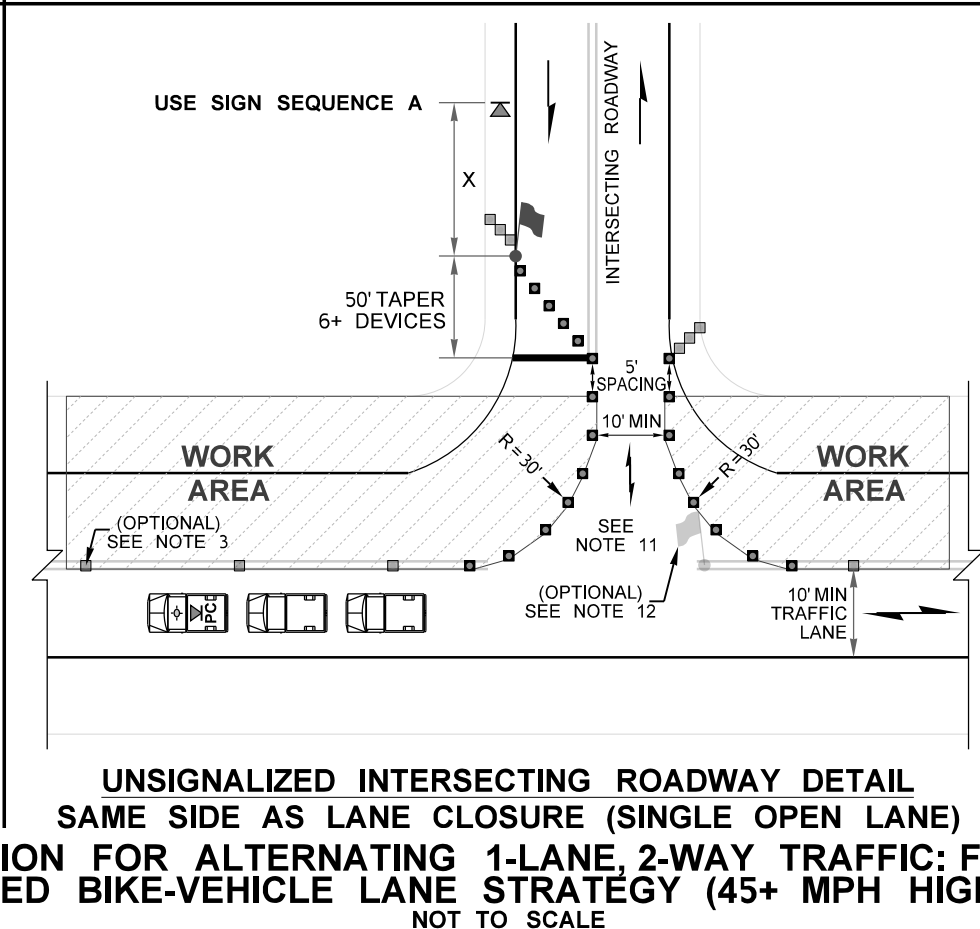
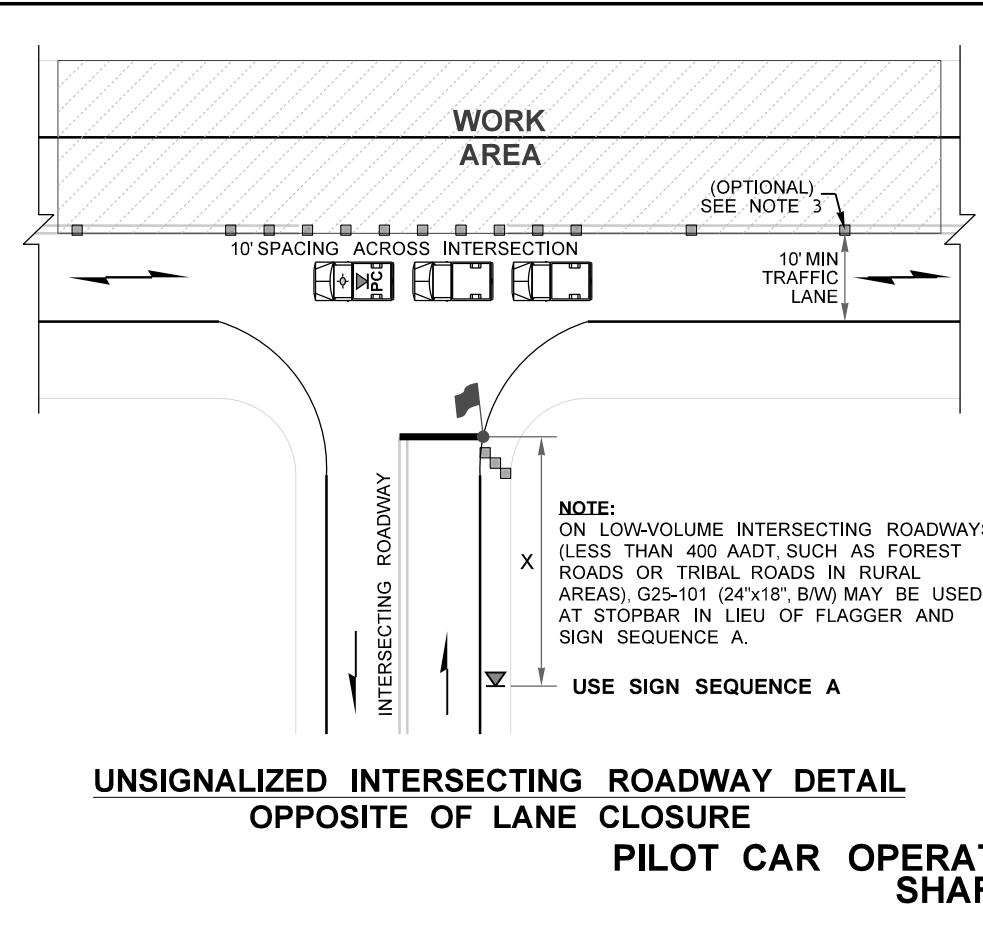
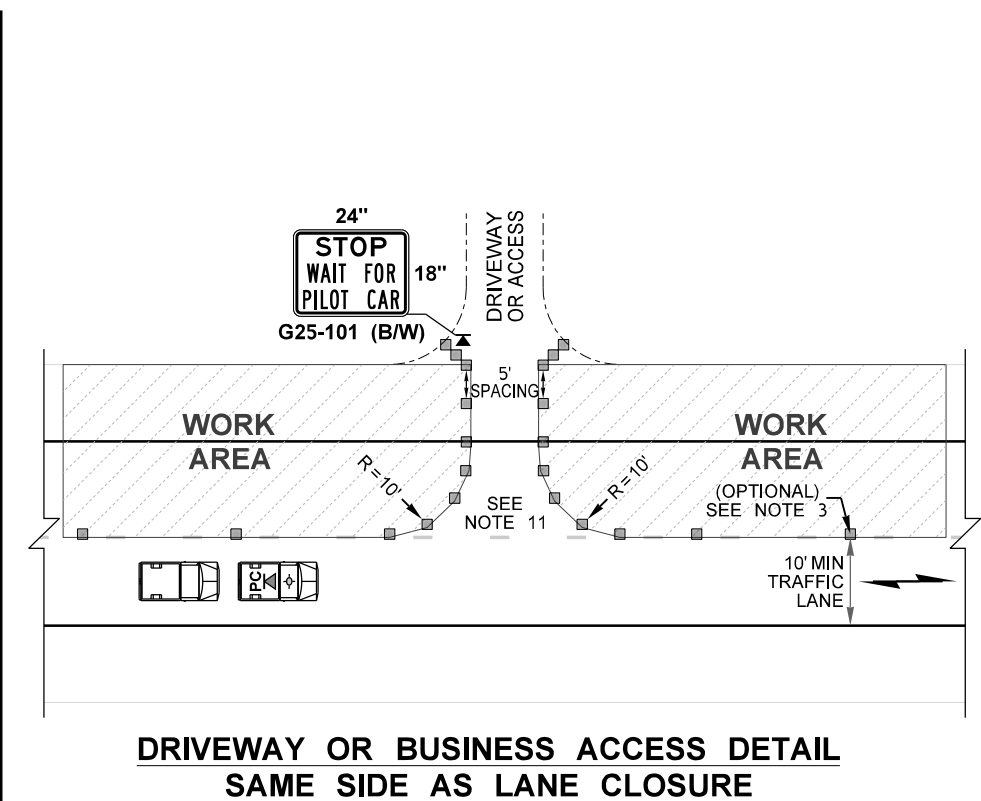
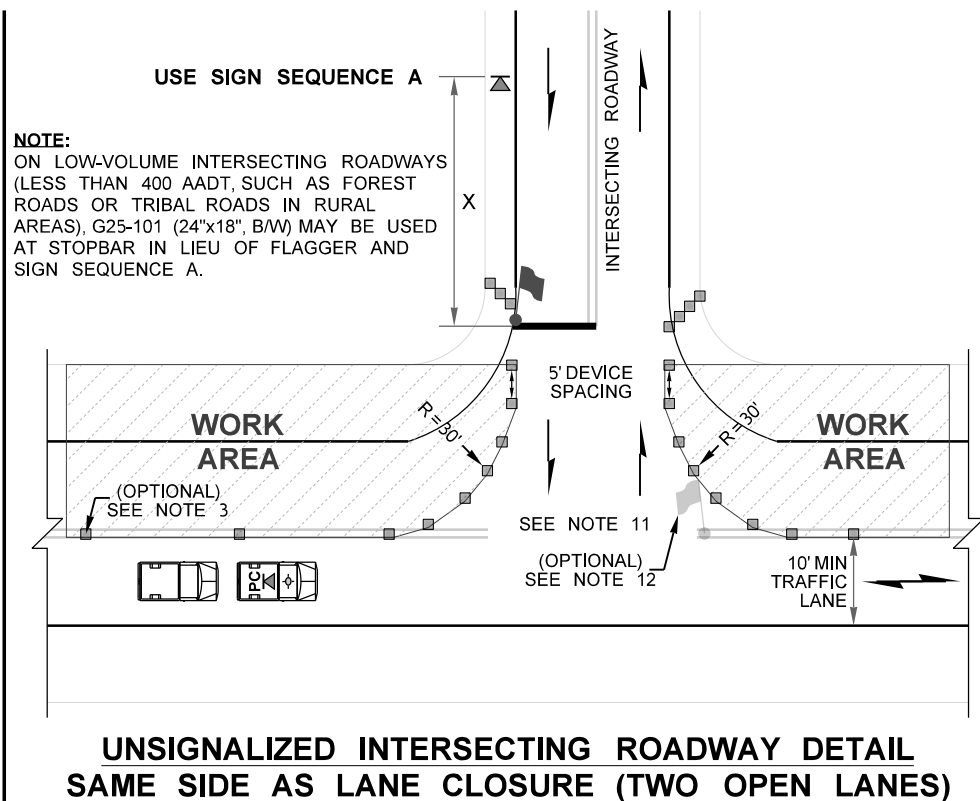
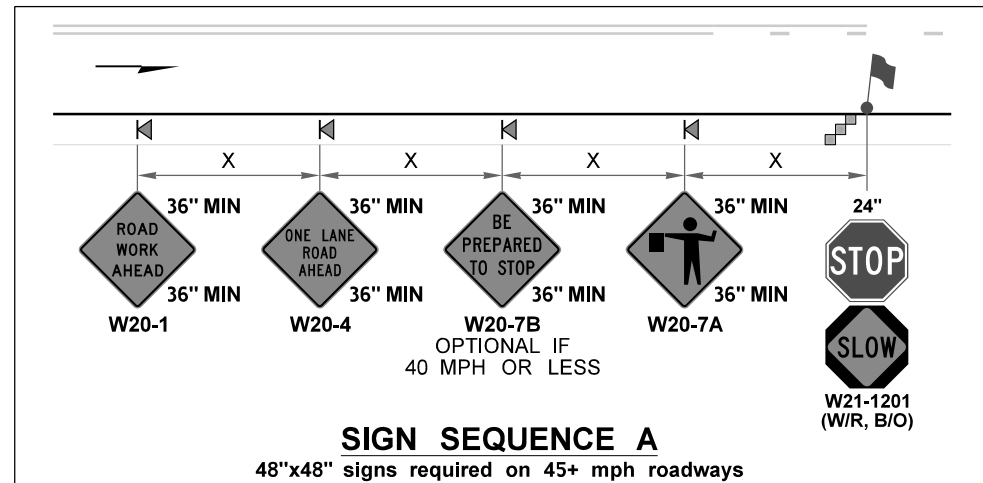
The sequence of signs and their minimum spacing requirements are:

- W20-1 ROAD WORK AHEAD** (36" MIN spacing from W20-4)
- W20-4 ONE LANE ROAD AHEAD** (36" MIN spacing from W20-7B)
- W20-7B BE PREPARED TO STOP** (36" MIN spacing from W20-7A; *OPTIONAL IF 40 MPH OR LESS*)
- W20-7A WORK AHEAD** (36" MIN spacing from STOP sign)
- STOP** (24" spacing from SLOW sign)
- SLOW** (W21-1201 (W/R, B/O))

SIGN SEQUENCE A

48"x48" signs required on 45+ mph roadways

12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

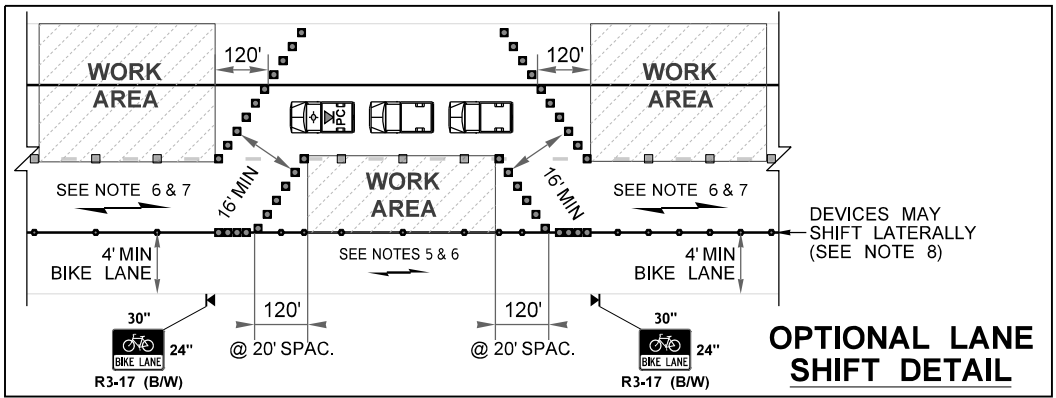


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TIME 6:56:36 AM								REGION NO.												STATE		FED.AID PROJ.NO.						PLAN REF									
DATE 7/18/2023								10												WASH								TC32									
PLOTTED BY LintzF																																					
DESIGNED BY								JOB NUMBER														<div><div>DATE</div><div>P.E. STAMP BOX</div></div>						<div><div>DATE</div><div>P.E. STAMP BOX</div></div>						SHEET 2 OF 4 SHEETS			
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REGIONAL ADM.				REVISION				DATE		BY																											

RECOMMENDED SIGN SPACING = X (1)			
RURAL HIGHWAYS	60-65 MPH	800' ±	
RURAL ROADS	45-55 MPH	500' ±	
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.			

LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	45	50	55	60	65
B (feet)	360	425	495	570	645
Buffer space may be adjusted (±) based on field conditions.					

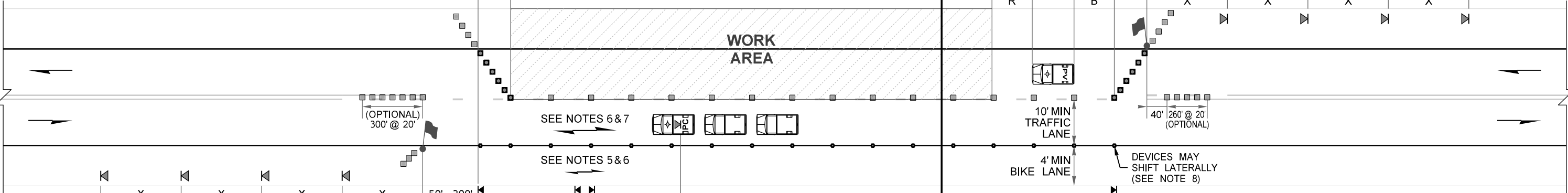
MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 65	10 to 20	80
45	10 to 20	60



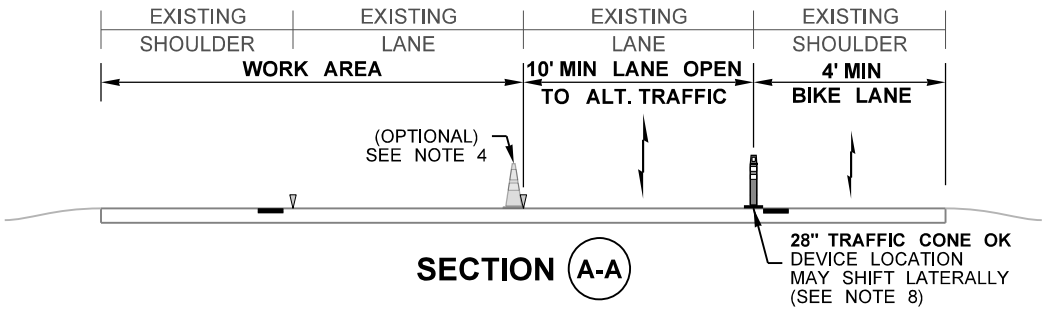
FOR DRIVEWAY, BUSINESS ACCESS, AND INTERSECTING ROADWAY DETAILS: SEE TC323, SHEET 4.

PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R	
STRATEGICALLY POSITION WORK VEHICLE TO PROTECT WORK CREW. 40' - 80' RECOMMENDED.	

STATIONARY TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R			
HOST VEHICLE WEIGHT LESS THAN 22,000 lbs.		HOST VEHICLE WEIGHT 22,000+ lbs.	
45-55 MPH	60+ MPH	45-55 MPH	60+ MPH
123'	172'	100'	150'



LEGEND:	
	TEMPORARY SIGN LOCATION
	28" REFLECTIVE TRAFFIC CONE (SEE NOTE 4)
	OPTIONAL CHANNELIZATION DEVICE
	28" PORTABLE TUBULAR MARKER (SEE NOTE 8)
	PROTECTIVE VEHICLE (SEE NOTE 3)
	PILOT CAR (SEE NOTES 6 & 7)
	MOTORIST VEHICLE
	FLAGGER



- NOTES:
- PLAN IS APPLICABLE ONLY WHEN LANE & PAVED SHOULDER IS AT LEAST 14 FEET WIDE.
 - AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER.
 - IF LONGITUDINAL BUFFER SPACE REDUCED FROM DISTANCES LISTED IN TABLE, UPGRADE PROTECTIVE VEHICLE (PV) TO A TRANSPORTABLE ATTENUATOR (TA). ADDITIONAL PV/TAs MAY BE ADDED AT SEPARATE WORK CREWS.
 - MAY SHIFT Laterally. CHANNELIZATION DEVICE AT CENTERLINE OPTIONAL. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
 - BICYCLIST ACCOMEDIATION: ALTERNATE BIKES IN THE SEPARATED 2-WAY, 4' MIN BIKE LANE
 - PEDESTRIAN ACCOMEDIATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATIGES):
(A) ALTERNATE BOTH BIKE & PEDS IN THE SEPARATE 2-WAY, BIKE LANE (4' MIN, 8' WIDTH PREFERRED)
(B) PROVIDE FREE PED SHUTTLE (PILOT CAR, WORK VEHICLE, VAN, OR BUS MAY BE USED)
 - PILOT CAR OPERATOR TO DRIVE SPEED PRUDENT FOR WORK ZONE CONDITIONS, STOPPING TRAFFIC IF NECESSARY, UP TO A MAXIMUM SPEED OF 35 MPH (25 MPH AT LANE SHIFT).
 - 28" TRAFFIC CONE OK. DEVICE MAY SHIFT Laterally BUT PROVIDE 4' MIN BIKE LANE & 10' MIN TRAFFIC LANE.
 - SEE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
1-07.8(1) HIGH-VISIBILITY APPAREL
1-10.3(1)A FLAGGERS AND NIGHTTIME ILLUMINATION
1-10.3(2)A TRAFFIC CONTROL PROCEDURES
9-35.1 24-INCH STOP/SLOW PADDLE SIZE
 - FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
 - SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
 - EXISTING PAVEMENT MARKINGS MAY VARY.

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED SEPARATED BICYCLE LANE STRATEGY (45+ MPH HIGHWAYS)

NOT TO SCALE

FILE NAME	C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\323Hwy45+AltTrafficFlaggerPilotCarOp.dgn	REGION NO.	STATE	FED.AID PROJ.NO.
TIME	6:56:37 AM	10	WASH	
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PLOTTED BY	LintzF			
DESIGNED BY				
ENTERED BY				
CHECKED BY				
PROJ. ENGR.				
REGIONAL ADM.				
REVISION		DATE	BY	

				Plot 3
				PLAN REF NO
				TC323
				SHEET
				3
				OF
				4
				SHEETS
				TYPICAL TRAFFIC CONTROL PLANS

WORK ZONE MICROSTATION CELLS: Updated work zone cells incorporated (July 2023).

WSDOT CAE automatically updates cell libraries on WSDOT and on-site consultant staff computers (no action needed); however, external users or off-site consultants must manually install them. For additional information email HQCAEHelpDesk@wsdot.wa.gov.

Division 4 in WSDOT Plans Preparation Manual, Section 400.06(29), provides updated work zone cell library policy and information for PS&Es. See <https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/plans-preparation-manual>

TYPICAL TCP USAGE EXPLANATION:

Plot 1: Pilot Car Operation for flagger-controlled 1-lane, 2-way alternating traffic on the mainline for 45+ mph 2-lane highways with a shared bicycle-vehicle lane.

Plot 2: Details for intersecting roadways and driveway/business access for Plot 1.

Plot 3: Pilot Car Operation for flagger-controlled 1-lane, 2-way alternating traffic on the mainline for 45+ mph 2-lane highways with a separated bicycle lane. Separated bike lanes maximize vehicle capacity (minimizing queue & delays) especially when high bicycle volumes are expected and mainline flaggers are 1500'+ apart.

Plot 4: Details for intersecting roadways and driveway/business access for Plot 3.

Note: For temporary rumble strip versions of these plans, see Typical TC324.

Other Alternating Traffic TCPs (45+ mph): See Typical Traffic Control Plan Library (<https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/plan-sheet-library/work-zone-typical-traffic-control-plans-tcp>)

- * TC320s for other variations of flagger-controlled alternating traffic plans
- * TC330s for AFAD-controlled alternating traffic plans
- * TC340s for temporary signal-controlled alternating traffic plans
- * TC350s for traffic holds

If not published yet, they will be added in the future.

Other Alternating Traffic TCPs (40 mph or less): See Typical Traffic Control Plan Library (<https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/plan-sheet-library/work-zone-typical-traffic-control-plans-tcp>)

- * TC420s for flagger-controlled alternating traffic
- * TC430s for AFAD-controlled alternating traffic
- * TC440s for temporary signal-controlled alternating traffic plans
- * TC450s for traffic holds

If not published yet, they will be added in the future.

DESIGNER NOTES:

- A. Contact Region Transportation Operations to determine which Typical TCP(s) to utilize, as their are several variations available (or soon will be).
- B. These typical traffic control plans may be modified for site specific situations and/or WSDOT Region Transportation Operations standard practices. **Typical TCPs are not "Standard Plans".**
- C. **Do not use intermittent (old: "variable") regulatory work zone speed limit reductions for flagging or AFAD operations.** Instead, maintain the existing speed limit (or continuous regulatory work zone speed limit reduction, if applicable). See WSDOT Traffic Manual Section 5-18 and Executive Order E1060 regulatory speed limit reductions & advisory speed approval policy for work zones thru Region Transportation Operations.
- D. See MUTCD Table 6F-1 for additional temporary sign size information. Work zone signs are usually smaller than those used permanently.
- E. WAC 468-95-300 modifies MUTCD Table 6-1 "Recommended Advance Warning Sign Minimum Spacing". Sign spacing may be adjusted for field conditions based on engineering judgement. The Sign Spacing table is acceptable to use in Typical TCPs; however, site-specific traffic control plans should include actual sign spacing values (with Å) that have been verified in the field, on SR view, or via Google Maps.
- F. When positioned behind channelization devices, temporary signs should be mounted at 5' minimum.
- G. The work zone design speed is typically the posted speed limit (or the work zone speed limit when in effect). For split speed limits (SPEED LIMIT 65 TRUCKS 60), use the higher 65 mph for work zone design. For this Typical TCP, the work zone design speed is based on the existing posted speed limit for sign spacing, channelization device spacing, buffer, and roll ahead distances.
- H. "Flagger tapers" are always 50'-100' per closed lane with 6 devices minimum (10'-20' spacing on the taper), regardless of the posted speed limit or lane width per MUTCD 6C.08, Paragraph 15. Never use "L" for these tapers.
- I. Channelization devices types may be modified (vertical panel channelization devices prohibited). 28" reflective traffic cones are recommended on flagger-controlled alternating traffic (especially for access delineation to maintain visibility for turning motorists). 36" reflective traffic cones, 42" tall channelization devices, or traffic safety drums may be used. Warning lights on channelization devices is being phased out in Washington. Contact Region Transportation Operations for information regarding their standard practices.
- J. Maximum channelization device spacing table for tangents is based on WAC 468-95-301 and may ALWAYS be reduced.
- K. Sequential arrow boards are prohibited at flagger tapers per WSDOT standard practice and per MUTCD Guidance TA-10.
- L. Per MUTCD Section 6C.06, longitudinal buffer spaces are optional. Using longitudinal buffer spaces listed in MUTCD Table 6C-2 is recommended as best practice when feasible, but may be adjusted based on engineering judgement. The Longitudinal Buffer Space table is acceptable in Typical TCPs; however, site-specific traffic control plans should include actual buffer distances that have been verified in the field, on SR view, or via Google Maps.
- M. The lateral buffer (tranverse distance between open travel lanes and work area) is optional. No lateral buffer has been provided in these Typical TCPs due to the low speeds of alternating traffic. Actual work area limits may be modified.
- N. WSDOT best practice is to place a protective vehicle (PV) in the closed lane in advance of the work area for flagger-controlled alternating traffic, but provide a full longitudinal buffer space to provide errant vehicles an opportunity to stop at the posted speed limit on 45+ mph roadways before impacting the PV. If the longnitudinal buffer distance must be reduced or eliminated on 45+ mph roadways with flagger-controlled alternating traffic, then upgrade the PV to a transportable attenuator (TA). Additional PVs (or TAs) may be added prior to multiple work crews within a work area. Contact Region Transportation Operations for their standard practice.
- O. Placing channelization devices transversely (at 45° and 5-foot spacing) is an optional strategy to stop move errant drivers traveling within the closed lane(s) but is not shown in the Typical TCP.
- P. The downstream taper of 50'-100' is required on 1-lane, 2-way traffic configurations.
- Q. Duration of traffic holds for driveways, business accesses, and/or roadway approaches is listed as 5 minutes (1 minute on high volume highways) in this Typical Traffic Control Plan, but may be adjusted. Contact Region Transportation Operations for additional guidance.

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (45+ MPH HIGHWAYS)

	INFORMATIONAL USE ONLY	Plot 5
	DO NOT INCLUDE THIS SHEET IN CONTRACT PS&Es or TCP SUBMITTALS.	TC323
	DESIGNER GUIDANCE	